

UNIVERSITY OF CALIFORNIA
COLLEGE OF AGRICULTURE
BERKELEY, CALIFORNIA

AGRICULTURAL EXPERIMENT STATION
E. J. WICKSON, DIRECTOR

CIRCULAR NO. 52

INFORMATION FOR STUDENTS CONCERNING THE COLLEGE OF AGRICULTURE OF THE UNIVERSITY OF CALIFORNIA

BY
ERNEST B. BABCOCK.

THE UNIVERSITY.

The University comprises the following colleges and departments:

I.—IN BERKELEY.

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| 1. College of Letters. | 6. College of Mechanics. |
| 2. College of Social Sciences. | 7. College of Civil Engineering. |
| 3. College of Natural Sciences. | 8. College of Chemistry. |
| 4. College of Agriculture. | 9. College of Commerce. |
| 5. College of Mining. | 10. College of Medicine, first and
second years. |

Departments of Instruction in the Colleges at Berkeley:

Philosophy, Education, Jurisprudence, History, Political Science, Economics, Anthropology, Music, Semitic Languages, Oriental Languages, Sanskrit, Greek, Latin, English, Germanic Philology, German, Romanic Languages, Slavic Languages, Mathematics, General Science, Physics, Astronomy, Geography, Chemistry, Botany, Zoology, Physiology, Hygiene, Geology, Mineralogy, Mechanical and Electrical Engineering, Civil Engineering, Irrigation, Mining and Metallurgy, Drawing, Architecture, Agriculture, Military Science and Tactics, Physical Culture, Anatomy, Pathology.

II.—AT MOUNT HAMILTON.

Lick Astronomical Department (Lick Observatory).

III.—IN SAN FRANCISCO.

- I. San Francisco Institute of Art.
2. Hastings College of the Law.
3. College of Medicine, third and fourth years.
4. College of Dentistry.
5. California College of Pharmacy.

IV.—IN LOS ANGELES.

College of Medicine (Los Angeles Department), third and fourth years.

Information for Students Concerning the College of Agriculture of the University of California.

BY

ERNEST B. BABCOCK.

Foreword.

It is the purpose of this circular to give information for students who are interested in the State College of Agriculture of California. Each state is supposed to have its college of agriculture or land grant college, as it is sometimes called, because these institutions were first made possible through the act of Congress of 1862, known as the Congressional Land Grant or the Morrill Act. Owing to diverse conditions in the various states and the indefinite wording of the Morrill Act, these state colleges have developed into three different types of schools: (1) the agricultural trade school with low entrance requirements, giving practical agricultural training accompanied with elementary theoretical instruction; (2) the agricultural college (with an associated experiment station) having the same entrance requirements as other college departments; (3) the general college giving instruction in all branches of study including agriculture.

The College of Agriculture of the University of California stands as second of the three types described above, and its proper function, in addition to the broad work of research, experiment, and instruction of direct benefit to farmers themselves, which it has been carrying on for years, has been the training of men and women for research and for teaching. The Experiment Station through its sub-stations, its coöperative work with farmers, and the researches of its specialists which are issued as bulletins, circulars, and reports, is adding millions of dollars to the income of California farmers. A new and important phase of this great work of extending agricultural knowledge is found in the new school for farmers' sons, which is further described on page 7. For the adequate expansion and conduct of all this extension work and to meet the new and increasing demand for the teaching of agriculture in the public high schools, more broadly trained specialists, more well prepared teachers, are required. At the same time there are more opportunities than ever before for efficient, well educated men in the field of farm management in California. There is need for men who can go from the Agricultural College back to the farm and demonstrate to the whole countryside, by their success with improved methods, what they have gained through their special training and increased knowledge. These are the opportunities which the Agricultural College extends to the boys and young men in California schools and to this end it offers the courses described in this circular.

Courses in the College of Agriculture.

The College of Agriculture is one of the academic colleges of the University of California. It offers a general course for students who desire a course of general culture with their principal work in agriculture and a series of technical courses for those who desire primarily

to become acquainted with the theory of agriculture and the technique of agricultural practice and investigation. All these are four-year courses and lead to the degree of Bachelor of Science. The fundamental studies in English, Mathematics, Foreign Languages, History or Economics and Natural Sciences, also such advanced work in these and other branches as the student elects, are taken in other departments of the University. At the same time students in other colleges may elect such subjects in the agricultural department as they are qualified to pursue. Recognizing the College of Agriculture as an inherent part of the University, it is obvious that an equally high academic standard should obtain for graduates of the College of Agriculture as for graduates from any other college of the University.

Preparation for the College of Agriculture.

Owing to changes that have recently been made in the requirements for graduation from the College of Agriculture, it is important that intending intrants should understand the present requirements. The same general plan of procedure in undergraduate work is now prescribed for all students in the College. This means that the required fundamental studies shall be completed by the end of the first two years of residence. This is the work of the preparatory school and the lower division in the University. Upon completion of this required work the student receives the Junior Certificate, which entitles him to *elect* the remainder of his undergraduate courses providing he arrange his studies so as to show an amount of properly correlated, advanced work sufficient to satisfy the general requirement for graduation from an academic college.

Preparatory students, who intend to enter the College of Agriculture, should familiarize themselves with the requirements for the Junior Certificate in that College, since the work of an accredited high school is really supplementary to that of the Lower Division. For example, four years of English in an accredited high school completes the total requirement in English for the Junior Certificate. In the same way the student may complete the Junior Certificate requirements in Mathematics, Foreign Languages, History, Natural Science, or Agriculture. In other words, a student, who presents excess Matriculation credit in *any prescribed subject*, thereby reduces the amount of work required of him in that subject in the University and earns the privilege of substituting *elective courses* in making up the sixty-four units of work required for the Junior Certificate. This arrangement does not lessen the *amount* of work to be done, but it does give an opportunity to take more courses in Agriculture, for example, than would otherwise be possible in the Lower Division. It makes possible broader preparation in Natural Sciences, Foreign Languages, or Economics.

The value of an arrangement like this is not yet fully appreciated. There is still too great a tendency among young students to seek premature, narrow specialization. The general course in the College of Agriculture is equivalent to a course in the College of Natural Sciences. Broad training in science is presupposed. A technical course should be based both on broad study of the sciences and special

intensive work in one or more of them. The value of a reading knowledge of modern foreign languages for the technical student should not be overlooked. The German and French scientists are preëminent in forestry, agricultural chemistry, agricultural technology, bacteriology, and plant pathology. If students who intend to secure higher education in agriculture will keep these facts in mind during their preparatory course, they will find themselves better qualified to meet the ever advancing requirements of leaders in agriculture.

*Summary of Requirements for the Junior Certificate including Requirements for Matriculation:*¹

[The requirements are stated in "units"; in the University a unit signifies one hour per week of recitation or lecture with preparation therefor, during one half-year. A course of study taken in the preparatory school for one year at five periods per week is valued at three units. The number of units indicated below for each subject under the head of Junior Certificate represents the normal amount of work done in the lower division of the University.]

Subject	Matriculation 6 (subject 1)	Junior Certificate 6	Total for Certificate 12
English			
Foreign Language, Ancient or Modern	12 (from subjects 6-9, 15)	6	18
Hist., Econ., Pol. Sc., Psych., Ethics, Hist. of Philosophy	3 (subject 5)	6	9
Mathematics	6 (subjects 2, 3)	3 or 6 }	12
Logic		3 or 0 }	
Natural Science	3 (any one of subjects 11, 12b, etc.)	15	18
Agriculture		12	12
Mil. Sc., Phys. Cult., Hygiene		9	9
Elective	15	4	19
Total units	45	64	109

Plan of the General Course.

LOWER DIVISION.

(1) While an important consideration in providing this course is to allow freedom in electing studies, it is necessary to comply with all prerequisites to the major courses, which the student proposes to elect in the Upper Division. It is intended that students in the general course shall pursue some connected series of studies in natural science and agriculture throughout the undergraduate period. At least one-half of this work should consist of laboratory courses.

(2) Students intending to elect laboratory courses in Agricultural Chemistry (analysis of soils, fertilizers, etc.) and major courses in Irrigation must take Mathematics 3A-3B and Physics 1A-1B in the Lower Division. Those desiring courses in Agricultural Chemistry may choose between Chemistry 5A, or 5B and 6, in the Sophomore year. Students preparing to engage in farming should elect surveying (C. E.

¹ For the full description of matriculation subjects and other details see *Circular of Information concerning the Academic Colleges*. Sent free upon request by the Recorder of the Faculties, University of California, Berkeley.

1A-1B, 1C-1D), Commercial Law (Jurisprudence 18) and a course in Economics, either in Lower or Upper Division. Plane Trigonometry is prerequisite to Surveying.

(3) All students before graduation must have had a general course in Soils and at least one course in Botany. All are strongly advised to familiarize themselves with the fundamentals of Zoology and Bacteriology.

UPPER DIVISION.

Among the sixty units of work normally taken there must be thirty-six units in *major courses*, as follows:

Agriculture (any sub-departments)	15
Natural Science or Agriculture	9
Any department	12

One hundred and twenty-four units are required for graduation.

Plan of the Technical Courses.

LOWER DIVISION.

The studies should be chosen primarily with reference to the major subject. Beginning in the Sophomore year, the student will indicate on his study-list card, each half-year, the number (as given below) of the technical course he proposes to follow. The subjects in which a sufficient number of major courses are offered to constitute them *major subjects* in Agriculture are as follows:

- I. Soils and Fertilizers.
- II. Agricultural Chemistry and Nutrition.
- III. Agricultural Technology.
- IV. Animal Industry and Veterinary Science.
- V. Dairy Industry.
- VI. Irrigation.
- VII. Entomology.
- VIII. Plant Pathology.
- IX. Plant Production (at least one major course in Horticulture, Soils, and Experimental Agronomy, together with any other major subjects in this list).

(1) For the Junior Certificate in the Technical Courses the following is required: General Inorganic Chemistry and Qualitative Analysis. This requirement can be satisfied at present by matriculation subject 12b together with Chemistry 1A-1B and 3A-3B, total 13 units.

(2) While not essential for the Junior Certificate, the following work is required as prerequisite to the major subjects as listed above:

- Gravimetric and Volumetric Analysis for I, II, and III.
- General Zoology and Elementary Bacteriology for IV and V.
- General Physics and Surveying for VI.
- Entomology for VII.
- Two Laboratory Courses in Botany for VIII and IX.

(3) See also paragraphs two and three, Lower Division, General Course.

UPPER DIVISION.

Among the sixty units of work normally taken there must be thirty-six units in *major courses*, as follows:

Major subject	10
Thesis in the major subject	4
Natural Science correlated with major subject	10
Agriculture (any sub-departments)	12

Thesis work will be arranged with an instructor in the major subject. The student will submit his plan of thesis work to the Dean of the College at the beginning of his Senior year. For procedure follow rules 2-8 inclusive as stated on the last page of the Announcement of Courses.

One hundred and twenty-four units are required for graduation.

The Pre-forestry Course.

The University has no complete Department of Forestry. The College of Agriculture, however, provides a course of instruction for prospective students of forestry. This course has been arranged to serve two purposes: (1) To meet the needs of students who desire to take one or more years in the University of California in order to gain advanced standing in an eastern institution offering a full course in forestry. (2) Providing a schedule for graduation from the University of California which shall best prepare for a post-graduate course in forestry.

It is to be noticed that the pre-forestry course provided is closely related to engineering courses in the University of California and aims to prepare the successful student for the profession of Forestry Engineer. To this end it is believed that university instruction in forestry must be more and more directed. All of the instruction in this pre-forestry course is now given in the University of California except the special subjects pertaining to forestry policy and practice, which should be studied in the Senior year. It is hoped that instruction in these subjects can be provided before very long.

For a copy of the prescribed course in Forestry apply to Professor E. B. Babcock, University of California, Berkeley.

No "Special Courses" in Agriculture.

The courses described above are intended for regular students; that is, students who have had the equivalent of good high school preparation and have been fully matriculated. The University has no "special" courses. Special students² and students at large² may enroll in those courses in the University for which they have had the necessary preparation. Courses will be open to such students during any half-year in General Science, Botany, Zoology, Chemistry, Elementary Bacteriology, Surveying (Plane Trigonometry prerequisite), Agriculture, Horticulture, Plant Pathology, Entomology, Animal Industry, Nutrition, Dairy Industry, Poultry Husbandry, and Agricultural Education. *For the ANNOUNCEMENT OF COURSES, which con-*

² For information see *Circular of Information, Academic Colleges*, and circular on *Special Students in the University*, to be obtained from the Recorder of the Faculties, University of California, Berkeley.

tains a full description of all courses offered in the University and lists of the faculties in the various departments, send 14 cents in stamps to the Recorder of the Faculties, University of California, Berkeley.

Faculty Men as Freshmen Advisers.

It is important that prospective intrants should understand the motive of the University Faculty in appointing some of its members as advisers for students during their Freshman year. The aim of the University in making this arrangement is twofold: (1), to provide help in arranging studies during the first year of residence; (2) to have at least one faculty member become personally acquainted with the Freshmen assigned to him or who choose him as adviser, this acquaintance to be made in a social way so that new students may have a friend among the faculty from the outset. During the two years that this system has been in operation the students have been very willing to meet their advisers half way and the results have been mutually satisfactory.

Agriculture Students at the University Farm.

Most of the regular courses in Animal Industry, Dairy Industry, and Poultry Husbandry together with some of those in Veterinary Science, Veterinary Entomology, and Horticulture are now given at the University Farm. This is a tract of 779 acres situated at Davis, Yolo County, about 75 miles northeast of Berkeley. About \$300,000 have been spent for buildings, stock, and equipment, including cost of the land, and the University is now in a position to offer valuable opportunities to students who wish to supplement their work at Berkeley with actual practice. Regular students usually spend part of their Junior or Senior years at the farm.

Short Courses at the University Farm.

Short courses of from 2 to 8 weeks' duration are given at the University Farm during September, October, and November of each year. Any citizen of California of good moral character, who is over 17 years of age, will be admitted to these short courses, but they are arranged especially for mature persons who cannot be away from their homes for a long time. There is no charge except a nominal fee to pay the cost of materials used. For full description of courses apply to The Director, Agricultural Experiment Station, Berkeley, California.

The University Farm School at Davis.

At the University Farm there is maintained an agricultural school for boys who have finished the eighth grade in a public grammar school or its equivalent. Students have the advantage of all the buildings and equipment provided for University students on the Farm as well as a special corps of instructors. The experience afforded is directly preparatory for practical farm life. The course of study is shown below. For further information concerning the school apply to Professor Leroy Anderson, Superintendent of University Farm Schools, Berkeley, California.

UNIVERSITY FARM SCHOOL.
STUDY SCHEDULE.

<i>First Term.</i>		<i>Second Term.</i>	
Hours per Week		Hours per Week	
1st year—			
Farm crops	3	Farm crops	3
Farm practice	3	Farm practice	3
Stock judging	4	Stock judging	4
Botany	8	Botany	8
Physiology and Hygiene	2	Physiology and Hygiene	2
English	5	English	5
Arithmetic	5	Algebra	5
Shop work	6	Shop work	6
	36		36
2nd year—	Hours per Week		Hours per Week
Horticulture	4	Horticulture	4
Shop work	4	Shop work	5
Animal industry	6	Animal industry	6
Dairy industry	6	Dairy industry	6
Chemistry	6	Chemistry	8
English and history	5	English and history	5
Algebra	5	Farm accounts	2
	36		36
3rd year—	Hours per Week		Hours per Week
Soils and soil fertility	6	Soils and soil fertility	6
Irrigation and surveying	4	Irrigation and surveying	4
Physics	5	Farm mechanics	5
English and history	5	English and history	5
	20		20
Elective subjects 15-20.		Elective subjects 15-20.	

Groups in which elective subjects may be taken:

Animal industry	Horticulture	Poultry husbandry
Dairy industry	Viticulture	Mathematics (Geometry)

Agriculture Students' Organizations.

The Agricultural Club. This is an association of all the students in the College of Agriculture. Monthly meetings are held which are usually addressed by some prominent person connected with agricultural industries. Occasional excursions are made by the club to points of interest around San Francisco Bay.

Alpha Zeta Honor Society. This is an honor fraternity exclusively for agriculture men. The California Chapter has no club house, the idea being to make it strictly an honor society rather than a social organization. Responsibility for choice of new members rests entirely with the active members of the fraternity. The basis for choice is three-fold: (1) Scholarship, as shown by the student's record throughout his first two or three years of undergraduate work or his record as a graduate student; (2) purpose, to follow up some definite agricultural activity; (3) personality. Students are not usually elected to membership before their Senior year, so that members of the society have ample opportunity to become intimately acquainted with them. At the National Corn Show held in Omaha in December, 1909, there were twenty-six Alpha Zeta men from the different states taking leading parts in the activities of this great association. Alpha Zeta has come to stand for leadership in agriculture.